

### **REMARKS**

This is intended as a full and complete response to the Office Action dated August 24, 2007, having a shortened statutory period for response set to expire on November 24, 2007. Please reconsider the claims pending in the application for reasons discussed below.

Claims 22-27, and 29-34, 36-38 remain pending in the application and are shown above. Claims 25-27 and 38 have been cancelled by Applicant. Claims 22-27, and 29-34, 36-38 are rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 22 and 32 are amended to clarify the invention. The subject matter of claims 27 and 38 have been added to claims 22 and 32, respectively. New claim 39 has been added to claim another aspect of the invention. Applicant submits no new matter has been added and respectfully requests entry of the claims as amended.

Claims 22-27 and 29-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Onoe, et al* (U.S. Patent No. 6,270,839) or *Suntola, et al* (U.S. Patent No. 4,389,973) in view of *Arnold, et al* (U.S. Patent No. 5,224,202) or *Horsky* (U.S. Patent No. 6,452,338). Applicant respectfully traverses the rejection on grounds that the references *Onoe, et al*, *Suntola, et al*, *Arnold, et al*, and *Horsky* alone, or in combination, do not teach, suggest, provide motivation for, or otherwise render obvious the subject matter of the pending claims.

The reference *Onoe, et al*. teaches an apparatus for feeding raw material for chemical vapor deposition from a container [1] within an oven [7]. Applicant submits that *Onoe, et al* does not teach, suggest, or provide any indication or motivation to position a heating device in any other location within the container [1]. On the contrary, Applicant submits that *Onoe, et al* provides a strong justification for the choice of an oven [7] for a heating device at Column 6, Lines 19-21.

The reference *Suntola, et al* teaches a method for growing thin films from a body [60] having heaters [56, 68] coupled to an outer surface of reactive vapor sources [53, 54]

and an outer surface of the body [60], respectively. Applicant submits that the heaters [68] disposed on the outer surface of the body [60] are not taught or suggested as being "contained" in the body [60]. Applicant further submits that the heaters [68] are not in communication with the reactive vapor sources [53, 54] as the reactive vapor sources [53, 54] include separate heaters [56]. Applicant also notes that the heaters [56] are not taught or suggested as being "contained" in any walls or other portions of the body [60], but are merely surrounding reactive vapor sources [53, 54] (see *e.g.*, Figures 8 and 9C, and the description at Column 5, Line 54-Column 6, Line 7). Applicant submits that the reference *Suntola, et al* is void of any suggestion or indication to modify the placement of heaters [56, 68] relative to other elements in the apparatus.

The reference *Arnold, et al* teaches an evaporator [5] having a housing [22] with a heating coil [6] disposed therein. Applicant submits the evaporator [5] is used for vaporizing a liquid wherein the liquid is atomized prior to contacting any surface (*i.e.*, an evaporator body [12]) within the housing [22]. Applicant submits the reference *Arnold, et al* is void of any teaching or suggestion of applying any solid precursor to a surface in the evaporator [5]. Further, as *Arnold, et al* is directed to evaporation of a liquid, which causes temperature fluctuations during use, such as great temperature reductions (Column 4, Lines 4-16), Applicant submits that one of skill in the art of sublimating a solid precursor material would not be lead to the teachings of *Arnold, et al*.

The reference *Horsky* teaches two embodiments of a vaporizer [28] having a heater plate [20] and a cooling means (water inlet [22] or thermoelectric cooler [30]) disposed in, or in contact with, a vaporizer body [29]. The vaporizer [28] also includes a crucible [18] formed in the vaporizer body [29] that is spaced apart from the heater plate [20] and cooling means [22, 30]. Applicant submits the placement of the heater plate [20] is taught by *Horsky* in order to more effectively control temperature by heating and cooling the crucible [18], which controls the flow of gas to an ionization chamber [5] (Col. 5, Lines 51-54). Applicant submits that the reference *Horsky* is void of any teaching or suggestion of any inlet for providing a carrier gas and the teaching of temperature regulated flow teaches away from any carrier gas introduction.

Applicant submits the references *Onoe, et al*, *Suntola, et al*, *Arnold, et al*, and *Horsky* alone, or in combination, do not teach, suggest, provide motivation for, or otherwise render obvious the subject matter of the pending claims. Applicant further submits that the teachings of the individual references would not lead one of skill in the art to combine the references *Onoe, et al*, *Suntola, et al*, *Arnold, et al*, and *Horsky* to derive the subject matter of the pending claims.

Applicant submits the references *Onoe, et al*, *Suntola, et al*, *Arnold, et al*, and *Horsky* alone, or in combination, do not teach, suggest, provide motivation for, or otherwise render obvious an apparatus for vaporizing a solid precursor, comprising an atomic layer deposition (ALD) chamber having a reaction chamber, a housing having an inlet for receiving a carrier gas and an outlet in fluid communication with a sealable interior volume, wherein the outlet is operably coupled to the reaction chamber of the atomic layer deposition (ALD) chamber, at least two surfaces comprising a mesh material contained in the housing having a solid tantalum-containing precursor applied thereto, and a heating member contained within a wall of the housing, wherein at least one of the at least two surfaces is in thermal communication with the wall of the housing, as recited in claim 22. Withdrawal of the rejection to claim 22, and claims dependent thereon, is respectfully requested. Applicant submits claim 22 is patentable and new claim 39 is therefore patentable.

Claims 32-34 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Onoe, et al* or *Suntola, et al*, in view of *Arnold, et al* or *Horsky* to claims 22-27 and 29-31 above, and further in view of *Gartner, et al* (U.S. Patent No. 4,947,790) or *Loan, et al* (U.S. Patent No. 6,296,711). Applicant respectfully traverses the rejection on grounds that the references *Onoe, et al*, *Suntola, et al*, *Arnold, et al*, *Horsky*, *Gartner, et al*, and *Loan, et al* alone, or in combination, do not teach, suggest, provide motivation for, or otherwise render obvious the subject matter of the pending claims.

The references *Onoe, et al*, *Suntola, et al*, *Arnold, et al*, and *Horsky* are discussed above. The reference *Gartner, et al* teaches an evaporation vessel [1] disposed in a fluid

[3] with no teaching or suggestion of heating means in a wall of the evaporator vessel [1]. The reference *Loan, et al* teaches a vaporization chamber [26] at Figure 2a having a vaporizer [28] disposed therein. Applicant submits that *Loan, et al*'s vaporization chamber [26] does not teach or suggest any heating means disposed in or near any walls of the chamber [26]. Applicant submits that *Loan, et al* teaches away from any heaters in the body of the vaporization chamber [26] as the vaporizer [28] disposed therein is taught as having heaters [90] disposed in bores [29, 31] formed in the vaporizer [28].

Applicant submits that *Onoe, et al, Suntola, et al, Arnold, et al, and Horsky* alone, or in combination, do not teach, suggest, provide motivation for, or otherwise render obvious, the subject matter of the pending claims. Applicant further submits that the references *Gartner, et al* and/or *Loan, et al* would not be combined with the references *Onoe, et al, Suntola, et al, Arnold, et al, and/or Horsky*.

Applicant submits the references *Onoe, et al, Suntola, et al, Arnold, et al, Horsky, Gartner, et al, and Loan, et al* alone, or in combination, do not teach, suggest, provide motivation for, or otherwise render obvious an apparatus for vaporizing a solid precursor, comprising an atomic layer deposition (ALD) chamber having a reaction chamber, a housing having an inlet for receiving a carrier gas and an outlet in fluid communication with a sealable interior volume, wherein the outlet is operably coupled to the reaction chamber of the atomic layer deposition (ALD) chamber, at least two cone shaped surfaces contained in the housing having a solid tantalum-containing precursor applied thereto, and a heating member contained within a wall of the housing, wherein at least one of the at least two surfaces is in contact with the wall of the housing, as recited in claim 32. Withdrawal of the rejection to claim 32, and claims dependent thereon, is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.


Application No. 10/792,323  
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Reply to Office Action of August 24, 2007

Docket No.: 005191C1/ISM/CORE/MCVD/PJS

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

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Respectfully submitted,

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